EXHIBIT 112

Bidding auction, the publisher then typically passes information about the winning bid from the Header Bidding auction to Google's ad server in real-time.[7]

14.   Up until at least December 2021, the winning bid from the Header Bidding auction was typically used to trigger a specific line item that the publisher had booked within Google's ad server (most commonly a remnant line item), and as described above in paragraph 11, the Value CPM of that line item could represent the winning Header Bidding bid as a floor in the AdX auction (prior to September 2019) or as a competing bid in the Unified First Price Auction (from September 2019 onwards).

Interaction Between Header Bidding and Dynamic Allocation

15.   Beginning around 2014 and up to at least December 2021, publishers often used Header Bidding and Dynamic Allocation together to put AdX in competition with remnant line items.

16.   Based on the Dynamic Allocation process described above in paragraphs 10-12, a Header Bidding line item could compete for publisher inventory against bids from AdX and other remnant line items.

17.   The fact that AdX would be called after the header call has been characterized by some third parties as a "last look" for AdX. But "last look" was not designed to give AdX an advantage when competing against Header Bidding. It was simply the result of the Header Bidding auction taking place before the AdX auction ran and the way that publishers configured Header Bidding line items to work with Dynamic Allocation.

---

[7] Header Bidding can also be configured to pass multiple bids to Google's publisher ad server.

GOOG-AT-MDL-008842398

Enhanced Dynamic Allocation

18.   Before 2014, publishers with guaranteed delivery contracts faced the challenge of ensuring that they complied with contractual requirements to deliver impressions to specific advertisers without sacrificing revenue by allocating inventory to direct deals when indirect demand sources would pay more.

19.   In March 2014, Enhanced Dynamic Allocation was introduced to allow remnant line items, AdX line items, and AdSense line items to compete simultaneously with the guaranteed line items with no impact to the delivery of guaranteed line items. The indirect demand source (e.g., AdX or a remnant line item) was eligible to win the impression if the revenue to be derived from that indirect demand source was higher than the opportunity cost of not serving the guaranteed line item.

20.   Up to at least December 2021, with Enhanced Dynamic Allocation, the ad server calculated what is known as a temporary CPM for a guaranteed deal. The temporary CPM took into account how much room the publisher had left to meet the agreed volume commitment and reflected the opportunity cost of not allocating the ad space to the guaranteed deal on that basis. The more behind schedule a guaranteed line item was, the higher the temporary CPM. Therefore, a guaranteed line item that was behind schedule would win more often, making it likely to satisfy its goal. DFP used past line item delivery information along with campaign goals to determine how frequently to serve a current line item to achieve its delivery goal.

21.   If the pacing of the guaranteed line item required the associated ad to deliver in every possible instance, the temporary CPM would become infinite. As the guaranteed line item came closer and closer to fulfilling its goal, the temporary CPM approached 0. When the guaranteed line item fulfilled its goal, it was no longer a candidate in the AdX auction.

22.   Between the launch of Enhanced Dynamic Allocation in 2014 and the launch of the Unified First Price Auction in 2019,[8] the floor price in AdX was the highest of: (i) the publisher-configured floor price; (ii) the Enhanced Dynamic Allocation price set dynamically based on a temporary CPM (the "EDA price"); (iii) the price of the remnant line item that was selected as a candidate for the impression; and (iv) the price determined by optimization.[9] Assuming for simplicity that (i) and (iv) are 0, if the highest effective AdX bid could beat both the EDA price and the price of the remnant line item that was selected as a candidate for the impression, then the ad associated with that AdX bid would win. If not, the guaranteed or remnant line item would win.

Open Bidding

23.   Open Bidding became generally available in April 2018 (as Exchange Bidding).[10] Open Bidding is a feature of Ad Manager and Google's server-side alternative to header bidding. It allows third party ad exchanges to compete with line items booked in Ad Manager (including header bidding line items) and with Authorized Buyers, DV360, and Google Ads in a real-time auction. This technology allows publishers to invite third-party ad exchanges to submit bids with real time prices using standard real time bidding calls.

24.   Open Bidding avoids the latency issues that publishers sometimes experience when trying to create the effect manually through self-implemented solutions (e.g. header bidding), as well as the transparency and privacy issues associated with header bidding. Most header bidding has traditionally taken place client-side, meaning the page sends out requests to individual ad

---

[8] As described in paragraph 26, there was a brief period before Open Bidding became generally available when an Open Bidding bid could set the floor price in AdX.

[9] Google launched a feature to optimize a publisher's floor prices in April 2015. Before April 2015, the price determined by optimization was not considered in setting the floor price in AdX.

[10] In mid-2019, Exchange Bidding for Ad Manager inventory rebranded as Open Bidding. For simplicity, I refer to it as Open Bidding throughout the remainder of this declaration.

GOOG-AT-MDL-008842400